Claims

What is claimed is:

1. A fiber optic device, comprising:
a substrate comprising at least one groove comprising a first surface;
a fiber stop comprising a second surface;
a bonding material; and
at least one fiber comprising a third surface in the at least one groove, wherein at least one of the first surface, the second surface, and the third surface has a wettability that increases in the direction of the fiber stop.

2. The fiber optic device of claim 1, wherein the bonding material is solder.

3. The fiber optic device of claim 1, wherein the increased wettability is obtained by the presence of selective metallization on at least one of the first surface, the second surface, and the third surface.

4. The fiber optic device of claim 1, wherein the increased wettability is obtained by the presence of tapered metallization on the first surface.

5. The fiber optic device of claim 1, wherein the increased wettability is obtained by the presence of selective metallization on the third surface, wherein the selective metallization is distal from the fiber stop.

6. The fiber optic device of claim 1, wherein the increased wettability is obtained by the presence of metallization on the third surface, and wherein the second surface is metallized.

7. The fiber optic device of claim 1, wherein the increased wettability is obtained by the presence of selective metallization on the third surface, wherein the selective metallization is proximal to the fiber stop, and wherein the second surface is metallized.

8. The fiber optic device of claim 1, further comprising a pit in the substrate, and wherein the pit is deeper than the groove.

9. The fiber optic device of claim 1, further comprising a pit with tapered sides in the substrate, and wherein the pit is deeper than the groove.

10. A fiber optic device, comprising:
a substrate comprising at least one groove comprising a surface;
a fiber stop;
solder; and
tapered metallization on the surface, wherein the area of the metallization increases in the direction of the fiber stop.

11. A method for longitudinally locating an optical fiber comprising a stub end in a groove, comprising the steps of:
providing a substrate comprising at least one groove comprising a first surface;
providing a fiber stop comprising a second surface;
providing a bonding material; and
providing at least one fiber comprising a third surface in the at least one groove, wherein at least one of the first surface, the second surface, and the third surface has a wettability that increases in the direction of the fiber stop; and
pressing the optical fiber against the fiber stop by surface tension between the bonding material and at least one of the first surface, the second surface, and the third surface.

12. The method of claim 11, wherein the bonding material is solder.

13. The method of claim 11, wherein the increased wettability is obtained by the presence of selective metallization on at least one of the first surface, the second surface, and the third surface.

14. The method of claim 11, wherein the increased wettability is obtained by the presence of tapered metallization on the first surface.

15. The method of claim 11, wherein the increased wettability is obtained by the presence of selective metallization on the third surface, wherein the selective metallization is distal from the fiber stop.

16. The method of claim 11, wherein the increased wettability is obtained by the presence of metallization on the third surface, and wherein the second surface is metallized.

17. The method of claim 11, wherein the increased wettability is obtained by the presence of selective metallization on the third surface, wherein the selective metallization is proximal to the fiber stop, and wherein the second surface is metallized.

18. The method of claim 11, further comprising a pit in the substrate, and wherein the pit is deeper than the groove.

19. The method of claim 11, further comprising a pit with tapered sides in the substrate, and wherein the pit is deeper than the groove.

20. The method of claim 11, comprising the steps of:

providing a substrate comprising at least one groove comprising a surface;

providing a fiber stop;

providing solder; and

providing at least one fiber comprising a third surface in the at least one groove, wherein the surface comprises tapered metallization, and wherein the area of the metallization increases in the direction of the fiber stop.

pressing the optical fiber against the fiber stop by melting the solder.